

REMARKS

Claims 2, 3, 5 and 6 are pending in the present application, of which, claims 3 and 6 have been canceled without prejudice or disclaimer and claims 2 and 5 have been amended. Applicants respectfully submit that no new matter has been added. Applicants believe that this Amendment is fully responsive to the Office Action dated December 16, 2002.

As to the Merits:

As to the merits of the case, the Examiner maintains the following rejection:

claims 2, 3, 5 and 6 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Citizen (JP 4-120322, of record) in view of Okutani et al. (of record) and Takagi et al. (of record).

This rejection is respectfully traversed.

Independent Claim 2:

Independent claim 2 has been amended to include the features of canceled dependent claim 3. It is respectfully submitted that Takagi and the other applied references do not disclose or fairly suggest the features of claim 2, as amended, concerning the groups of light receiving windows disposed in a plurality on the same radius at the same phase.

For example, as shown in Fig. 9 of the present invention, a plurality of groups of light receiving windows 102 and 104 are disposed on the same radius at the same phase.

Takagi fails to disclose such an arrangement. Instead, Takagi discloses that the groups of spatial filters on the same radius, for example, spatial filters 66A and 66B, are of different phases.

More specifically, according to Takagi:

These spatial filters 66A and 66A have the same spatial period which corresponds to the fringe pitch of the interference image, but they have a relative phase difference by 180 degrees. Another pair of spatial filters 66B and 66B are arranged in parallel to the pair of spatial filters 66A and 66A. These spatial filters 66B and 66B have also the same spatial period which corresponds to the fringe pitch of the interference image, but they have a relative phase difference by 180degrees. Further, there is a phase difference of 90 degrees between the pair of filters 66A and 66A and the other pair of filters 66B and 66B.¹ (Emphasis Added).

Independent Claim 5:

Independent claim 5 has been amended to include the features of canceled dependent claim 6. It is respectfully submitted that Takagi and the other applied references do not disclose or fairly suggest the feature of claim 5, as amended, concerning the groups of light receiving portions disposed in a plurality on the same radius at the same phase.

¹Please see, lines 43 - 54, column 18 of Takagi.

For example, as shown in Fig. 12 of the present invention, a plurality of groups of light receiving portions 132 and 134 are disposed on the same radius at the same phase.

Takagi fails to disclose such an arrangement. Instead, Takagi discloses that the photodetectors on the same radius, for example, photodetectors 68A and 68B, are of different phases.

More specifically, according to Takagi:

Four photodetectors 68A, 68A, 68B and 68B are disposed correspondingly to respective one of the four spatial filters 66A, 66A, 66B and 66B. These four photodetectors produce AC detection signals having phase differences of 90 degrees and 180 degrees correspondingly to the phase differences of the spatial filters.²

In view of the aforementioned amendments and accompanying remarks, the claims, as amended, are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicant's undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "**Version with markings to show changes made.**"

²Please see, lines 54 - 59, column 18 of Takagi.

In the event that this paper is not timely filed, Applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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PATENT TRADEMARK OFFICE

Enclosures: Version with markings to show changes made

VERSION WITH MARKINGS TO SHOW CHANGES MADE 09/581,818**IN THE CLAIMS**

Claims 2 and 5 have been AMENDED to read as follows:

2. (Thrice Amended) An encoder having a code pattern provided on a rotary disk, which detects the rotation speed and rotational position of the rotary disk by receiving light coming from a light emitting element and transmitted through or reflected from said code pattern by a light receiving element; wherein a fixed slit which is disposed between said rotary disk and said light receiving element so that a plurality of light receiving windows through which light reflected from or transmitted through the code pattern passes is disposed so as to have a difference in phase at different positions in the radial direction of the rotary disk; the length of said light receiving windows in the radial direction is set so as to gradually become shorter from the inner peripheral side toward the outer peripheral side; and the opening area of said light receiving windows at the inner peripheral side of said fixed slit is set to be equal to that at the outer peripheral side, wherein said light receiving windows are a group of light receiving windows, consisting of a plurality of light receiving windows disposed on the same radius at the same phase, and the total sum of the opening areas of light receiving windows of the same phase and the total sum of light receiving windows of the other phase are set to be equal to each other, wherein said groups of light receiving windows are disposed in a plurality on the same radius at the same phase.

5. (Thrice Amended) An encoder having a code pattern provided on a rotary disk, which detects the rotation speed and rotational position of the rotary disk by receiving light coming from a light emitting element and transmitted through or reflected from said code pattern by a light receiving elements; wherein said light receiving elements have a plurality of light receiving portions to receive light, coming from a light emitting element, transmitted from or reflected from said code pattern, which are disposed so that they have differences in phase in different positions in the radial direction of said rotary disk, the length of said rotary disk of the light receiving portions in the radial direction is set so as to gradually become shorter from the inner peripheral side toward the outer peripheral side; the area of the light receiving portion at the inner peripheral side of the light receiving element is set to be equal to that at the outer peripheral side, wherein said light receiving portions are a group of light receiving portions consisting of a plurality of light receiving portions disposed on the same radius at the same phase, and the total sum of the opening areas of light receiving portions of the same phase and the total sum of light receiving portions of the other phase are set to be equal to each other, wherein said groups of light receiving portions are disposed in a plurality on the same radius at the same phase.